

McGraw-Hill

DICTIONARY OF

SCIENTIFIC AND

TECHNICAL

TERMS

Fourth Edition



Sybil P. Parker

EDITOR IN CHIEF

McGRAW-HILL BOOK COMPANY

New York

St. Louis

San Francisco

Auckland	Bogotá
Caracas	Colorado Springs
Hamburg	Lisbon
London	Madrid
Mexico	Milan
Montreal	New Delhi
Oklahoma City	Panama
Paris	San Juan
São Paulo	Singapore
Sydney	Tokyo
	Toronto

BEST AVAILABLE COPY

**On the cover: Pattern produced from white light by a computer-generated diffraction plate containing 529 square apertures arranged in a 23 × 23 array.
(R. B. Hoover, Marshall Space Flight Center)**

On the title pages: Aerial photograph of the Sinai Peninsula made by Gemini spacecraft. (NASA)

Included in this Dictionary are definitions which have been published previously in the following works: P. B. Jordain, *Condensed Computer Encyclopedia*, Copyright © 1969 by McGraw-Hill, Inc. All rights reserved. J. Markus, *Electronics and Nucleonics Dictionary*, 4th ed., Copyright © 1960, 1966, 1978 by McGraw-Hill, Inc. All rights reserved. J. Quick, *Artists' and Illustrators' Encyclopedia*, Copyright © 1969 by McGraw-Hill, Inc. All rights reserved. *Blakiston's Gould Medical Dictionary*, 3d ed., Copyright © 1956, 1972 by McGraw-Hill, Inc. All rights reserved. T. Baumeister and L. S. Marks, eds., *Standard Handbook for Mechanical Engineers*, 7th ed., Copyright © 1958, 1967 by McGraw-Hill, Inc. All rights reserved.

In addition, material has been drawn from the following references: R. E. Huschke, *Glossary of Meteorology*, American Meteorological Society, 1959; *U.S. Air Force Glossary of Standardized Terms*, AF Manual 11-1, vol. 1, 1972; *Communications-Electronics Terminology*, AF Manual 11-1, vol. 3, 1970; W. H. Allen, ed., *Dictionary of Technical Terms for Aerospace Use*, 1st ed., National Aeronautics and Space Administration, 1965; J. M. Gilliland, *Solar-Terrestrial Physics: A Glossary of Terms and Abbreviations*, Royal Aircraft Establishment Technical Report 67158, 1967; *Glossary of Air Traffic Control Terms*, Federal Aviation Agency; *A Glossary of Range Terminology*, White Sands Missile Range, New Mexico, National Bureau of Standards, AD 467-424; *A DOD Glossary of Mapping, Charting and Geodetic Terms*, 1st ed., Department of Defense, 1967; P. W. Thrush, comp. and ed., *A Dictionary of Mining, Mineral, and Related Terms*, Bureau of Mines, 1968; *Nuclear Terms: A Glossary*, 2d ed., Atomic Energy Commission; F. Casey, ed., *Compilation of Terms in Information Sciences Technology*, Federal Council for Science and Technology, 1970; *Glossary of Stinfo Terminology*, Office of Aerospace Research, U.S. Air Force, 1963; *Naval Dictionary of Electronic, Technical, and Imperative Terms*, Bureau of Naval Personnel, 1962; *ADP Glossary*, Department of the Navy, NAVSO P-3097.

**McGRAW-HILL DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS,
Fourth Edition**

Copyright © 1989, 1984, 1978, 1976, 1974 by McGraw-Hill, Inc. All rights reserved. Printed in the United States of America. Except as permitted under the United States Copyright Act of 1976, no part of this publication may be reproduced or distributed in any form or by any means, or stored in a data base or retrieval system, without the prior written permission of the publisher.

4 5 6 7 8 9 0 DOW/DOW 9 5 4 3 2

ISBN 0-07-045270-9

Library of Congress Cataloging-in-Publication Data

McGraw-Hill dictionary of scientific and technical terms.

1. Science—Dictionaries. 2. Technology—Dictionaries.

I. Parker, Sybil P.

Q123.M34 1989

503'/21

88-13490

ISBN 0-07-045270-9

For more information about other McGraw-Hill materials, call 1-800-2-MCGRAW in the United States. In other countries, call your nearest McGraw-Hill office.

BEST AVAILABLE COPY

showing a specific end apparatus arranged in a punctate manner and connected with the pressure sense. { 'preshər pōɪ̄n̄ }

pressure process [CHEM ENG] Treatment of timber to prevent decay by forcing a preservative such as creosote and zinc chloride into the cells of the wood. { 'preshər ,prä'səs }

pressure radius [PETRO ENG] The effective radius of increased reservoir pressure surrounding a water-injection well. { 'preshər ,rād'ē̄as }

pressure rating [ENG] The operating (allowable) internal pressure of a vessel, tank, or piping used to hold or transport liquids or gases. { 'preshər ,rād'ī̄g }

pressure-regulating valve [ENG] A valve that releases or holds process-system pressure (that is, opens or closes) either by preset spring tension or by actuation by a valve controller to assume any desired position between full open and full closed. { 'preshər ,reg'yā,lād'ī̄ng ,valv }

pressure regulator [ENG] Open-close device used on the vent of a closed, gas-pressure system to maintain the system pressure within a specified range. { 'preshər ,reg'yā,lād'ār }

pressure release [GEOPHYS] The outward-expanding force of pressure which is released within rock masses by unloading, as by erosion of superincumbent rocks or by removal of glacial ice. { 'preshər ri,lesh̄ }

pressure-release jointing [GEOL] Exfoliation that occurs in once deeply buried rock that erosion has brought nearer the surface, thus releasing its confining pressure. { 'preshər ri,lesh̄ ,jōint'ī̄ng }

pressure relief [ENG] A valve or other mechanical device (such as a rupture disk) that eliminates system overpressure by allowing the controlled or emergency escape of liquid or gas from a pressurized system. { 'preshər ri,lesh̄ }

pressure relief device [MECH ENG] 1. In pressure vessels, a device designed to open in a controlled manner to prevent the internal pressure of a component or system from increasing beyond a specified value, that is, a safety valve. 2. A spring-loaded machine part which will yield, or deflect, when a predetermined force is exceeded. { 'preshər ri,lesh̄ di,vis }

pressure relief valve [MECH ENG] A valve which relieves pressure beyond a specified limit and recloses upon return to normal operating conditions. { 'preshər ri,lesh̄ ,valv }

pressure resistance [FL MECH] In fluid dynamics, a normal stress caused by acceleration of the fluid, which results in a decrease in pressure from the upstream to the downstream side of an object acting perpendicular to the boundary. Also known as pressure drag. { 'preshər ri,zis'tāns }

pressure-retaining member [MECH ENG] That part of a pressure-relieving device loaded by the restrained pressurized fluid. { 'preshər ri,tān̄īng ,mem'bər }

pressure ridge [GEOL] 1. A seismic feature resulting from transverse pressure and shortening of the land surface. 2. An elongate upward movement of the congealing crust of a lava flow. 3. A ridge of glacier ice. [OCEANOGR] A ridge or wall of hummocks where one ice floe has been pressed against another. { 'preshər ,rij̄ }

pressure ring [MIN ENG] A ring about a large excavated area, evidenced by distortion of the openings near the main excavation. { 'preshər ,rinḡ }

pressure-rise center [METEOROL] A point of maximum increase in atmospheric pressure over a specified interval of time; on synoptic charts, a point of maximum positive pressure tendency. Also known as anallobaric center; center of rises; isallobaric high; isallobaric maximum. { 'preshər ,riž̄ ,sen̄tər }

pressure roll [ENG] In plastics-extrusion coating, the roll that with the chill roll applies pressure to the substrate and the molten extruded web. { 'preshər ,rōl̄ }

pressure seal [ENG] A seal used to make pressure-proof the interface (contacting surfaces) between two parts that have frequent or continual relative rotational or translational motion. { 'preshər ,sēl̄ }

pressure-sensitive adhesive [MATER] An adhesive that develops maximum bonding power when applied by a light pressure only. { 'preshər ,sen̄sətiv̄ ad'hē'siv̄ }

pressure shadow [PETR] In structural petrology, an area adjoining a porphyroblast, characterized by a growth fabric rather than a deformation fabric, as seen in a section perpendicular to the *b* axis of the fabric. Also known as pressure fringe; strain shadow. { 'preshər ,shad̄ō }

pressure shift [SPECT] An increase in the wavelength at

which a spectral line has maximum intensity, which takes place when pressure is increased. { 'preshər ,shift }

pressure solution [PETR] In a sedimentary rock, solution occurring preferentially at the grain boundary surfaces. Also known as pressolution. { 'preshər sə,lü'shən̄ }

pressure-stabilized [AERO ENG] Referring to membrane-type structures that require internal pressure for maintenance of a stable structure. { 'preshər ,stā'bə,lizd̄ }

pressure still [CHEM ENG] A continuous-flow, petroleum-refinery still in which heated oil (liquid and vapor) is kept under pressure so that it will crack (decompose into smaller molecules) to produce lower-boiling products (pressure distillate or pressure naphtha). { 'preshər ,stil̄ }

pressure storage [ENG] The storage of a volatile liquid or liquefied gas under pressure to prevent evaporation. { 'preshər ,stōr'ij̄ }

pressure suit [AERO ENG] A garment designed to provide pressure upon the body so that respiratory and circulatory functions may continue normally, or nearly so, under low-pressure conditions such as occur at high altitudes or in space without benefit of a pressurized cabin. { 'preshər ,süt̄ }

pressure suppression See vapor suppression. { 'preshər ,sō,preshən̄ }

pressure surface See potentiometric surface. { 'preshər ,sōr,fās }

pressure-surface map See potentiometric map. { 'preshər ,sōr,fās ,map }

pressure survey [MIN ENG] A study to determine the pressure distribution or pressure losses along consecutive lengths or sections of a ventilation circuit. [PETRO ENG] The measurement of static bottomhole pressures in an oil field with producing wells shut in for a time interval sufficient for reservoir pressure buildup to stabilize. { 'preshər ,sōr,vā }

pressure switch [ELEC] A switch that is actuated by a change in pressure of a gas or liquid. { 'preshər ,swit̄ }

pressure system [ENG] Any system of pipes, vessels, tanks, reactors, and other equipment, or interconnections thereof, operating with an internal pressure greater than atmospheric. [METEOROL] An individual cyclonic-scale feature of atmospheric circulation, commonly used to denote either a high or a low, less frequently a ridge or a trough. { 'preshər ,sīs'təm }

pressure tank [CHEM ENG] A pressurized tank into which timber is inserted for impregnation with preservative. [CIV ENG] An airtight water tank in which air is compressed to exert pressure on the water and which is used in connection with a water distribution system. { 'preshər ,tānk̄ }

pressure tap [ENG] A small perpendicular hole in the wall of a pressurized, fluid-containing pipe or vessel; used for connection of pressure-sensitive elements for the measurement of static pressures. Also known as piezometer opening; static pressure tap. { 'preshər ,tap̄ }

pressure tendency [METEOROL] The character and amount of atmospheric pressure change for a 3-hour or other specified period ending at the time of observation. Also known as barometric tendency. { 'preshər ,ten'dən̄sē }

pressure-tendency chart See pressure-change chart. { 'preshər ,ten'dən̄sē ,chārt̄ }

pressure tensor [PL PHYS] A tensor which plays a role in magnetohydrodynamics analogous to that of the pressure in ordinary fluid mechanics. { 'preshər ,ten'sər }

pressure thrust [AERO ENG] In rocketry, the product of the cross-sectional area of the exhaust jet leaving the nozzle exit and the difference between the exhaust pressure and the ambient pressure. { 'preshər ,thrust̄ }

pressure topography See height pattern. { 'preshər tō,pāg'rāfē }

pressure transducer [ENG] An instrument component that detects a fluid pressure and produces an electrical signal related to the pressure. Also known as electrical pressure transducer. { 'preshər ,tranz,dū'sər }

pressure-travel curve [MECH] Curve showing pressure plotted against the travel of the projectile within the bore of the weapon. { 'preshər ,trav'ēl ,kərv̄ }

pressure traverse [PETRO ENG] Measurement of reservoir pressures at progressive depths. { 'preshər ,trə,vārs̄ }

pressure treater [CHEM ENG] Any chemical treating device operated at higher-than-atmospheric pressure, as in the chemical and petroleum industries. { 'preshər ,trēd̄ər }